

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

690 Walnut Ave.St. 150

Vallejo, CA 94592-1133

(707) 649-5453

(707) 649-5493

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 73.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-010125**Date Inspected:** 27-Oct-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 800**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1800**Contractor:** HoChang, Korea**Location:** Unyang, Korea**CWI Name:** Sang Ho Kwak**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Pier E2 Bearing and Shear key**Summary of Items Observed:**

The following report is based on METS observations at HoChang Machinery Industries (HMI).

On this date the Caltrans Quality Assurance (QA) inspector, Dong J. Shin arrived at HoChang Machinery Industries (HMI) located at Unyang and Onsan Korea and Korea Precision Co. located at Dooseo Korea. The Purpose of this trip was to observe quality control during fabrication and process of following items.

Forging

1. Bearing Bottom Housing (B1-07/F07302-010): Completed blasting and painting.
2. Bearing Bottom Housing (B2-07/F07302-020): Completed blasting and painting.
3. Bearing Bottom Housing (B3-07/F07302-030): Completed blasting and painting.
4. Bearing Bottom Housing (B4-07/F07302-040): Completed blasting and painting.
5. Spherical Ring (S1-07/F07302-050): Continue final machining.
6. Spherical Ring (S2-07/F07302-060): Continue final machining.
7. Spherical Ring (S3-07/F07302-070): Continue final machining.
8. Spherical Ring (S4-07/F07302-080): Continue final machining.
9. Solid Shaft (B1-02/F07302-090): Continue final machining.
10. Solid Shaft (B2-02/F07302-100): Continue final machining.
11. Solid Shaft (B3-02/F07302-110): Continue final machining.
12. Solid Shaft (B4-02/F07302-120): Continue final machining.

• F number is DooSan Production Number.

WELDING INSPECTION REPORT

(Continued Page 2 of 4)

- B number is drawing Number.

Casting

On this date the Caltrans Quality Assurance (QA) inspector, Dong J. Shin arrived at HoChang Machinery Industries (HMI) located at Unyang, Korea and DooSan Heavy Industries(DHI) located at Changwon, Korea. The Purpose of this trip was to observe quality control during fabrication and process of following items.

Samjeon NDT technician Mr. D. Y. Whang and Mr. G. T. Kim performed final MT on housing after final machining and minor defect removal area of Bearing Top Housing and Shear Key housing. QA inspector checked the following items prior to testing: Calibration Date, AC lifting power, and Pie gauge sensitivity. MPT used Yoke probe with wet visible method.

Samjeon NDT technician Mr. GT, Kim performed UT on minor repair area of Bearing Top Housing and Shear Key Housing. QA inspector checked following items prior to testing: UT Calibration date, calibration date and DAC curve, transducer size and frequency. Transducers Used: Straight Beam: 24mm dia. 2MHz, Dual Straight beam: 6 x 10mm 4MHz and minature angle: 8 x 9mm 4 MHz 45°.

On this date HMIC Qualified welder Mr. O. J. Park performed minor repair welding on Bearing Top Housing and Shear Key Housing. QA inspector and HMI QC Inspector verified welding parameters prior to start welding. Welding process utilized was Gas Tungsten Arc Welding (GTAW) with ER70S-6 with diameter 2.4mm rod manufactured by Hyundai Steel, Brand name ST-50.6 with 100% Argon gas. QA inspector verified welding parameter range was 15-17 volts, 200-245 amps, travel speed 74-89mm/min, Gas flow 12-15little/min., preheat temperature over 150°C and interpass temperature of less than 250° C. After completing repair welding, HMIC increased preheat up to 300°C for PWHT and covered by Heat blanket for slow cool down. All of welding parameters comply with approved welding procedure specifications No A-T-Z1Z1-147.

QA Inspector observed HMIC QC Inspector Mr. Kwak and ABF welding engineer Mr. Craig, Knops witnessed Welding Procedure Qualification test for WPS GT-013. HMIC QC Inspector checked welding parameters prior to and during welding progress. The welding process was Gas Tungsten Arc welding (GTAW) with diameter 2.0mm ER 316L electrode. Ampere was 156-166 Amps, Volts 14 V, Travel speed was Avg, 59.4mm/Min and Argon gas(100%) flow rate was 15/min. Please see detail information in TL-6032 with following witness LOT numbers. Welder C. K. Jang ID AIY
WPS No. - GT-013, Supporting PQR No. - QGT-013, QA LOT number - B258-48-09

1. Bearing Top Housing (B1-06, C07039-010): Minor repair welding.
2. Bearing Top Housing (B2-06, C07039-020): Minor repair welding.
3. Bearing Top Housing (B3-06, C07039-030): Minor repair welding.
4. Bearing Top Housing (B4-06, C07039-040): Minor repair welding.
5. Bearing Hold Down Assembly (B1-01-1, C07039-050): Completed final MT.
6. Bearing Hold Down Assembly (B1-01-2, C07039-060): Completed final MT.
7. Bearing Hold Down Assembly (B2-01-1, C07039-070): Completed final MT.
8. Bearing Hold Down Assembly (B2-01-2, C07039-080): Completed final MT.
9. Bearing Hold Down Assembly (B3-01-1, C07039-170): Completed final MT.

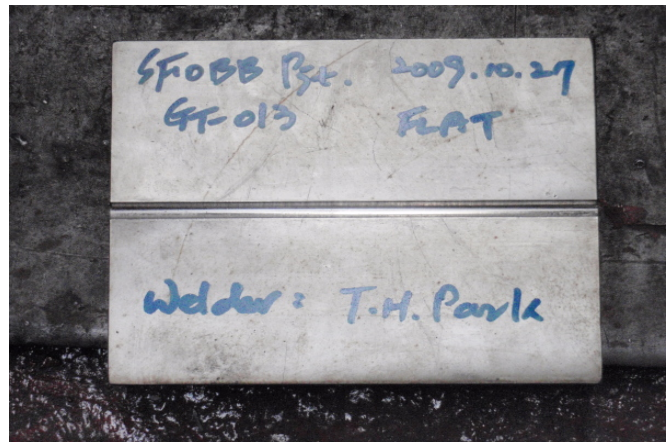
WELDING INSPECTION REPORT

(Continued Page 3 of 4)

10. Bearing Hold Down Assembly (B3-01-2, C07039-180): Completed final MT.
11. Bearing Hold Down Assembly (B4-01-1, C07039-190): Completed final MT.
12. Bearing Hold Down Assembly (B4-01-2, C07039-200): Completed final MT.
13. Shear Key Stub (S1-01, C07039-090): Completed final machining.
14. Shear Key Stub (S2-01, C07039-100): Completed final machining.
15. Shear Key Stub (S3-01, C07039-110): Completed final machining.
16. Shear Key Stub (S4-01, C07039-120): Completed final machining.
17. Shear key Housing (S1-03, C07039-130): Continue final machining.
18. Shear key Housing (S2-03, C07039-140): Continue final machining.
19. Shear key Housing (S3-03, C07039-150): Continue final machining.
20. Shear key Housing (S4-03, C07039-160): Continue final machining.

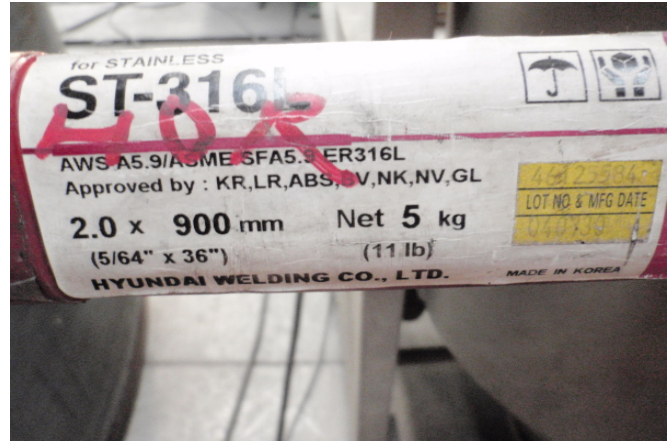
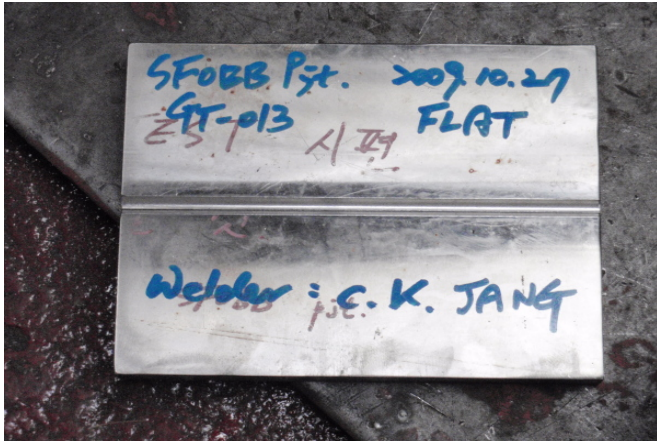
* S and B number is drawing number.

* C number is DSHI ID number.



WELDING INSPECTION REPORT

(Continued Page 4 of 4)



Summary of Conversations:

*Discuss with Mr. S. H. Kwak regarding general project schedule.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy, (510) 385-5910, who represents the Office of Structural Materials for your project.

Inspected By:	Shin,DJ	Quality Assurance Inspector
Reviewed By:	Edmondson,Fred	QA Reviewer
